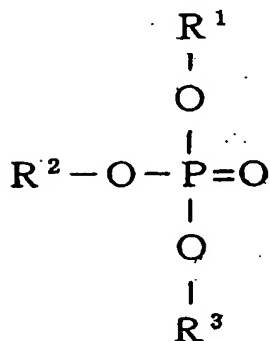


CLAIMS

1. An agent for reducing vapor pressure of 1,1,1,3,3-pentafluoropropane, comprising at least one compound represented by the following formula (1):



5

wherein  $R^1$ ,  $R^2$  and  $R^3$  represent a straight-chain alkyl group or branched-chain alkyl group having 2 to 5 carbon atoms,  $R^1$ ,  $R^2$  and  $R^3$  may be the same or different, with the proviso that the compound wherein  $R^1$ ,  $R^2$  and  $R^3$  are all ethyl groups is excluded, the compound having a total acid content of 650 mg KOH or less as measured in accordance with MIL H-19457.

10

2. The agent according to claim 1, wherein the compound represented by formula (1) is at least one species selected from the group consisting of poly-n-propyl phosphate, tri-n-butyl phosphate, tri-n-pentyl phosphate, tri-iso-propyl phosphate, tri-iso-butyl phosphate, tri-sec-butyl phosphate, tri-tert-butyl phosphate, tri-iso-pentyl phosphate, tri-sec-pentyl

15

phosphate, trineopentyl phosphate, ethyl-di(n-propyl)  
phosphate, ethyl-di(iso-propyl) phosphate, ethyl-di(n-butyl)  
phosphate, ethyl-di(iso-butyl) phosphate, ethyl-di(sec-  
butyl) phosphate, ethyl-di(tert-butyl) phosphate,  
5 ethyl-di(n-pentyl) phosphate, ethyl-di(iso-pentyl) phosphate,  
ethyl-di(sec-pentyl) phosphate, ethyl-di(neopentyl)  
phosphate, diethyl-n-propyl phosphate, diethyl-n-butyl  
phosphate, diethyl-iso-butyl phosphate, diethyl-sec-butyl  
phosphate, diethyl-tert-butyl phosphate, diethyl-n-pentyl  
10 phosphate, diethyl-iso-pentyl phosphate, diethyl-sec-  
pentyl phosphate, diethyl-neopentyl phosphate, n-  
propyl-di(iso-propyl) phosphate, di(n-propyl)-iso-propyl  
phosphate, n-propyl-di(n-butyl) phosphate, di(n-propyl)-n-  
butyl phosphate, n-propyl-di(iso-butyl) phosphate, di(n-  
15 propyl)-iso-butyl phosphate, n-propyl-di(sec-butyl)  
phosphate, di(n-propyl)-sec-butyl phosphate, n-  
propyl-di(tert-butyl) phosphate, di(n-propyl)-tert-butyl  
phosphate, n-propyl-di(n-pentyl) phosphate, di(n-propyl)-n-  
pentyl phosphate, n-propyl-di(iso-pentyl) phosphate, di(n-  
20 propyl)-iso-pentyl phosphate, n-propyl-di(sec-pentyl)  
phosphate, di(n-propyl)-sec-pentyl phosphate, n-  
propyl-di(neopentyl) phosphate, di(n-propyl)-neopentyl  
phosphate, iso-propyl-di(n-butyl) phosphate, di(iso-  
propyl)-n-butyl phosphate, iso-propyl-di(iso-butyl)  
25 phosphate, di(iso-propyl)-iso-butyl phosphate, iso-

propyl di(sec-butyl) phosphate, di(iso-propyl) sec-butyl  
phosphate, iso-propyl di(tert-butyl) phosphate, di(iso-  
propyl) tert-butyl phosphate, iso-propyl di(n-pentyl)  
phosphate, di(iso-propyl) n-pentyl phosphate, iso-  
5 propyl di(iso-pentyl) phosphate, di(iso-propyl) iso-pentyl  
phosphate, iso-propyl di(sec-pentyl) phosphate, di(iso-  
propyl) sec-pentyl phosphate, iso-propyl di(neopentyl)  
phosphate, di(iso-propyl) neopentyl phosphate, n-  
butyl di(iso-butyl) phosphate, di(n-butyl) iso-butyl  
10 phosphate, n-butyl di(sec-butyl) phosphate, di(n-butyl) sec-  
butyl phosphate, iso-butyl di(sec-butyl) phosphate, and  
di(iso-butyl) sec-butyl phosphate.

3. The agent according to claim 1, wherein the  
compound represented by formula (1) is one species  
15 selected from the group consisting of tri-n-propyl  
phosphate, tri-n-butyl phosphate, tri-iso-propyl phosphate,  
tri-iso-butyl phosphate, tri-sec-butyl phosphate,  
ethyl di(n-propyl) phosphate, ethyl di(n-butyl) phosphate,  
ethyl di(iso-butyl) phosphate, ethyl di(sec-butyl) phosphate,  
20 n-propyl di(iso-propyl) phosphate, di(n-propyl) iso-propyl  
phosphate, n-propyl di(n-butyl) phosphate, di(n-propyl) n-  
butyl phosphate, n-propyl di(iso-butyl) phosphate, di(n-  
propyl) iso-butyl phosphate, n-propyl di(sec-butyl)  
phosphate, di(n-propyl) sec-butyl phosphate, iso-  
25 propyl di(n-butyl) phosphate, di(iso-propyl) n-butyl

phosphate, iso-propyldi(iso-butyl) phosphate, di(iso-propyl)iso-butyl phosphate, iso-propyldi(sec-butyl) phosphate, di(iso-propyl)sec-butyl phosphate, n-butyldi(iso-butyl) phosphate, di(n-butyl)iso-butyl

5 phosphate, n-butyldi(sec-butyl) phosphate, di(n-butyl)sec-butyl phosphate, iso-butyldi(sec-butyl) phosphate, and di(iso-butyl)sec-butyl phosphate.

4. A premix composition for producing polyurethane foam, comprising a polyol, a curing catalyst,  
10 1,1,1,3,3-pentafluoropropane, a foaming stabilizer, and the vapor pressure reducing agent of claim 1.

5. The premix composition for producing polyurethane foam according to claim 4, further comprising at least one supplemental vapor pressure reducing agent  
15 selected from the group consisting of carbonates, ketones, esters, ethers, acetals, nitriles, amides, sulfoxides, and sulfolanes.

6. The premix composition for producing polyurethane foam according to claim 5, wherein the  
20 supplemental vapor pressure reducing agent is at least one compound selected from the group consisting of dimethylsulfoxide, tetrahydrofuran, 1,3-dioxolane, and dimethoxymethane.

7. The premix composition for producing  
25 polyurethane foam according to claim 4, further comprising

a supplemental foaming agent selected from the group consisting of a hydrocarbon foaming agent, a fluorine-containing hydrocarbon foaming agent, and a fluorine-containing ether foaming agent.

5                   8. The premix composition for producing polyurethane foam according to claim 7, wherein the supplemental foaming agent is at least one compound selected from the group consisting of n-pentane, isopentane, cyclopentane, 2-methylpentane, 3-methylpentane,  
10 n-hexane, cyclohexane, 1,1,1,3,3-pentafluorobutane, methoxy-heptafluoropropane, and methoxy-1,1,2,2-tetrafluoroethane.

                  9. The premix composition for producing polyurethane foam according to claim 4, further comprising  
15 water.

                  10. A method for producing a polyurethane foam, comprising the step of mixing a polyisocyanate with the premix composition according to claim 4 to form a polyurethane foam.

20                   11. The method for producing a polyurethane foam according to claim 10, wherein the premix composition for producing polyurethane foam further comprises at least one supplemental vapor pressure reducing agent selected from the group consisting of carbonates, ketones, esters,  
25 ethers, acetals, nitriles, amides, sulfoxides, and

sulfolanes.

12. The method for producing a polyurethane foam according to claim 11, wherein the supplemental vapor pressure reducing agent is at least one compound selected from the group consisting of dimethylsulfoxide, tetrahydrofuran, 1,3-dioxolane, and dimethoxymethane.

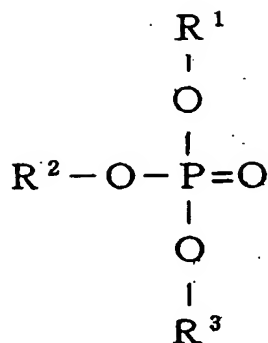
13. The method for producing a polyurethane foam according to claim 10, wherein the premix composition for producing polyurethane foam further comprises at least one supplemental foaming agent selected from the group consisting of a hydrocarbon foaming agent, a fluorine-containing hydrocarbon foaming agent, and a fluorine-containing ether foaming agent.

14. The method for producing a polyurethane foam according to claim 13, wherein the supplemental foaming agent is at least one compound selected from the group consisting of n-pentane, isopentane, cyclopentane, 2-methylpentane, 3-methylpentane, n-hexane, cyclohexane, 1,1,1,3,3-pentafluorobutane, methoxy-heptafluoropropane, and methoxy-1,1,2,2-tetrafluoroethane.

15. The method for producing a polyurethane foam according to claim 10, wherein the premix composition for producing polyurethane foam further comprises water.

16. A foaming composition comprising: (A) 1,1,1,3,3-pentafluoropropane; and (B) at least one

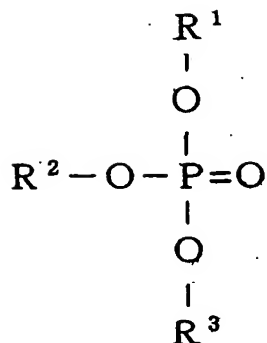
compound represented by the following formula (1):



wherein  $R^1$ ,  $R^2$  and  $R^3$  represent a straight-chain alkyl  
5 group or branched-chain alkyl group having 2 to 5 carbon  
atoms,  $R^1$ ,  $R^2$  and  $R^3$  may be the same or different, with the  
proviso that the compound wherein  $R^1$ ,  $R^2$  and  $R^3$  are all  
ethyl groups is excluded, the compound having a total acid  
content of 650 mg KOH or less as measured in accordance  
10 with MIL H-19457.

17. A 1,1,1,3,3-pentafluoropropane vapor  
pressure reducing composition, comprising:

a compound represented by the following formula (1):



wherein  $R^1$ ,  $R^2$  and  $R^3$  represent a straight-chain alkyl group or branched-chain alkyl group having 2 to 5 carbon atoms,  $R^1$ ,  $R^2$  and  $R^3$  may be the same or different, with the  
5 proviso that the compound wherein  $R^1$ ,  $R^2$  and  $R^3$  are all ethyl groups is excluded, the compound having a total acid content of 650 mg KOH or less as measured in accordance with MIL H-19457; and

at least one supplemental vapor pressure reducing  
10 agent selected from the group consisting of carbonates, ketones, esters, ethers, acetals, nitriles, amides, sulfoxides, and sulfolanes.

18. The composition according to claim 17,  
wherein the supplemental vapor pressure reducing agent is  
15 at least one compound selected from the group consisting of dimethylsulfoxide, tetrahydrofuran, 1,3-dioxolane, and dimethoxymethane.

19. The composition according to claim 17,  
wherein the supplemental vapor pressure reducing agent is



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contained in an amount of 0.1 to 100 parts by weight per  
100 parts by weight of the compound represented by formula  
(1).